

REMARKS

Claims 1-6, 8-19 and 22-27 are pending in the application. Claims 7, 20 and 21 have been canceled. The claims have been amended to delete multiple dependencies.

I. ELECTION/RESTRICTIONS

Applicants confirm the provisional election of Group I, claims 1-14, drawn to an apparatus, with traverse. Applicants traverse the restriction for the following reasons. In support of the restriction requirement, the Examiner states that the apparatus as claimed can be used for a different process, such as to imprint a pattern using a heat curable liquid or a gel, rather than a gas. Based on this statement, it appears that the Examiner has misunderstood the claimed invention.

As recited in independent claim 1 directed to the apparatus, the surface layer of the substrate to be imprinted is made of a radiation polymerizable fluid. The apparatus includes a radiation source devised to emit radiation for solidifying the surface layer. The apparatus further includes a membrane that engages the substrate. The membrane transparent to a wavelength range of the radiation used to solidify the surface layer. Thus the apparatus used to transfer a pattern from the template to the surface layer of the substrate uses radiation to cure the radiation polymerizable fluid of the surface layer.

The Examiner's statement that a heat curable liquid may be substituted for a gas is confusing, as the gas (the "medium") performs an entirely different function than the radiation polymerizable fluid of the surface layer in the claimed invention. It is not clear how the Examiner intends the "heat curable liquid or gel" to function in the claimed apparatus. The claimed apparatus includes a medium present in the cavity. Overpressure is applied to the medium, which exerts pressure on the membrane that engages the substrate. The medium may be gas or a liquid. The medium is not cured or solidified in the claimed apparatus.

The method of claims 15-19 and 22-25 includes the steps of exposing the surface layer of the substrate to be imprinted to radiation for solidifying said surface layer; and emitting radiation to said surface layer through said membrane, which membrane is transparent to a wavelength range of a radiation usable for polymerizing said fluid. Applicants respectfully submit that the claimed apparatus and method are not distinct inventions. Accordingly, Applicants request that the restriction requirement be withdrawn, and that prosecution of both the method and apparatus claims proceed in this application.

II. DOUBLE PATENTING

Claims 1-4 have been provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-6 of copending Application No. 11/905,036. Applicants submit herewith a Terminal Disclaimer. The copending Application No. 11/905,036 and the present application are commonly owned.

III. CLAIM OBJECTIONS

Claims 5-14 have been objected to under 37 C.F.R. § 1.75(c) as being in improper form because a multiple dependent claims 5-14. Claims 5-14 have been amended to delete the multiple dependencies. Accordingly, the objection has been overcome.

IV. REJECTION OF CLAIMS 1-2 AND 4 UNDER 35 U.S.C. § 102(b)

Claims 1-2 and 4 have been rejected under 35 U.S.C. § 102(b) as being unpatentable over Heidari (WO 01/42858; US 2003/0159608). Applicants respectfully traverse the rejection for at least the following reasons.

Claim 1, as amended, recites an apparatus for transferring a pattern from a template having a structured surface to a substrate carrying a surface layer of a radiation polymerisable fluid. The apparatus comprises a first main part and a second main part having opposing surfaces, means for adjusting a spacing between said main

parts, and support means for supporting said template and substrate in mutual parallel engagement in said spacing with said structured surface facing said surface layer. The apparatus also includes a radiation source devised to emit radiation, *for solidifying said layer*, into said spacing, a cavity having a first wall comprising a flexible membrane devised to engage said template or substrate, and means for applying an adjustable overpressure to a medium present in said cavity *wherein said membrane is transparent to a wavelength range of said radiation, said radiation source being positioned behind said membrane*.

One of the advantages of the presently claimed method and apparatus is that the polymerizable fluid can be spin coated on the entire surface of the substrate, which is less time consuming than the conventional step and flash method.

Heidari fails to teach or suggest a radiation polymerizable fluid used as a surface layer on the substrate and a radiation source devised to emit radiation for solidifying the surface layer, the radiation emitted into the spacing between the first and second main parts. Moreover, Heidari fails to teach or suggest emitting radiation to the surface layer through the membrane, which membrane is transparent to a wavelength range of a radiation usable for solidifying the fluid surface layer. Instead, Heidari discloses an embodiment wherein the substrate (5) is heated by means of irradiation of the base plate (2) and a support plate (4, 16). (See FIG. 7 below and paragraph [0053].)

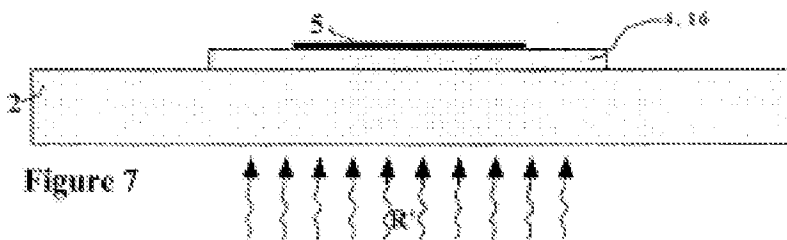


Figure 7

Heidari: US 2003/0159608

The radiation source of Heidari does not emit radiation for solidifying the fluid surface layer of the substrate. In fact, there is no mention whatsoever in Heidari that the surface layer may be fluid. Furthermore, Heidari does not teach emitting

radiation to the surface layer through the membrane, the membrane being transparent to a wavelength range of a radiation usable for solidifying the fluid surface layer.

Because Heidari fails to teach or suggest all of the features of the claimed apparatus and method, the rejection under 35 U.S.C. §102(b) should be withdrawn. In addition, one skilled in the art would not have been motivated to modify the apparatus of Heidari to arrange a radiation source such that radiation would be emitted through the membrane, as this would not provide the function of heating the substrate as disclosed in Heidari. Accordingly, the claimed apparatus and method are not obvious in view of Heidari.

V. REJECTION OF CLAIM 3 UNDER 35 U.S.C. § 103(a)

Claim 3 has been rejected under 35 U.S.C. § 103(a) as being unpatentable over Heidari (US 2003/0159608) in view of Chou et al. (US 2004/0131718). The Examiner acknowledges that Heidari fails to teach the medium comprising a gas such as air. It is the Examiner's position, however, that it would have been obvious to combine the pressurized apparatus of Heidari with the use of air as disclosed by Chou et al. for the benefit of a convenient and readily available source of fluid pressure.

Applicants traverse the rejection for at least the following reasons. As discussed above, claim 1, as amended, recites an apparatus for transferring a pattern from template to a substrate that includes a radiation source devised to emit radiation for solidifying the radiation polymerizable fluid surface layer on the substrate. A flexible membrane is devised to engage the template or substrate. The membrane is transparent to a wavelength range of the radiation, the radiation source being positioned behind said membrane.

Heidari fails to teach or suggest a radiation polymerizable fluid used as a surface layer on the substrate and a radiation source devised to emit radiation for solidifying the surface layer, the radiation emitted into the spacing between the first and second main parts. Moreover, Heidari fails to teach or suggest emitting radiation to the

surface layer through the membrane, which membrane is transparent to a wavelength range of a radiation usable for solidifying the fluid surface layer. Chou et al. fails to cure the deficiencies of Heidari. Even if one skilled in the art were motivated to combine the teachings of Heidari with those of Chou et al., the resulting combination would not include all of the features of the apparatus or method presently claimed. Because prima facie obviousness has not been established, the rejection under 35 U.S.C. §103(a) should be withdrawn.

VI. CONCLUSION

Accordingly, claims 1-6, 8-19 and 22-27 are believed to be allowable and the application is believed to be in condition for allowance. A prompt action to such end is earnestly solicited.

Should the Examiner feel that a telephone interview would be helpful to facilitate favorable prosecution of the above-identified application, the Examiner is invited to contact the undersigned at the telephone number provided below.

Should a petition for an extension of time be necessary for the timely reply to the outstanding Office Action (or if such a petition has been made and an additional extension is necessary), petition is hereby made and the Commissioner is authorized to charge any fees (including additional claim fees) to Deposit Account No. 18-0988.

Respectfully submitted,

RENNER, OTTO, BOISSELLE & SKLAR, LLP

/Heidi A. Boehlefeld/
Heidi A. Boehlefeld, Reg. No. 34,296

DATE: February 22, 2010

The Keith Building
1621 Euclid Avenue
Nineteenth Floor
Cleveland, Ohio 44115
(216) 621-1113